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ABSTRACT

Instructional television is said not to have achieved its potential in primary grades because of five major problems, all related to lack of precise information about the communicative effectiveness of instructional presentations in appropriate time frames. The five problems cited and discussed are lack of adequate knowledge of primary children's auditory and visual comprehension; lack of accurate knowledge about effective programing; lack of techniques for integrating television with print; lack of mobilization of pupils' active participation; and lack of cost-effectiveness information. It is said that these problems might be solved with careful research, and suggestions are made for implementing such a program. (SK)

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# INSTRUCTIONAL TELEVISION

# IN THE

# PRIMARY SCHOOL CLASSROOM:

## New Horizons--or Another Wasteland?

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1. Television is the most potent medium that has ever been devised for disseminating information to large numbers of people--especially children. Twenty-five years of experience with broadcast TV in homes have made this plain. The sudden emergence of cable TV and the video cassette player as instruments for the classroom now opens up entirely new domains of the electronic future. If these instruments are properly developed to take advantage of their unique instructional potential, they could truly revolutionize primary school classrooms.

2. In fact, one international video manufacturer with a lot to gain by this electronic revolution has already begun promoting the concept that "The blackboard is obsolete." Though this appeal is directed as much to the lay public as to the professional educator, his argument has force.

   No other teaching medium can perform as well or as flexibly as television in making the world of information and reality accessible to the thought processes of the young child. No other medium can manipulate action, object, and speech in virtually any imaginable visual and auditory combination. And no other medium can as readily combine any visual event with any verbal description, make any conceivable transformation, alternative, or accompaniment, or offer limitless repetitions of these elements in pursuing limitless instructional goals.

3. With these capabilities at his command, the video marketer can be forgiven for his extravagance, even though a more cautious observer might change the phrase to, "The blackboard is potentially obsolete." A critical, informed look at present reality raises serious questions as to whether the prospective electronic revolution of the classroom is ready to unfold, and whether it will occur at all. Without doubting for a moment that newly emerging TV technologies could bring major changes in primary school teaching practice, thoughtful observers identify major difficulties that could abort or distort this vast new potential for healthy change.

   If these difficulties are solved, television could indeed actualize its potential and become the most powerful new agent of curricular instruction since the development of inexpensive printed books. If the

difficulties are not solved, television in the primary schools will remain as it is today: a minor auxiliary means for elaborating the content of the orthodox curriculum for those who can afford the luxury.

4. The major difficulties that cable/cassette classroom TV in the primary school must solve if it is to realize its enormous potential lie in five distinct areas, which are related by a single common factor.

    a. Lack of adequate knowledge of primary level children's visual and auditory comprehension.

    b. Lack of an accurate body of shared knowledge about effective programming.

    c. Lack of developed techniques for integrating TV presentations with other media--especially print.

    d. Lack of systematized techniques for mobilizing pupils' active participation in TV presentations--the tendency to regard the viewers as a passive audience rather than as active learners.

    e. Lack of cost-effectiveness information for justifying very high capital costs for acquiring hardware and software.

    The single common factor which unites these seemingly diverse problem areas is the lack of precise information about the communicative effectiveness of instructional presentations in appropriate time frames.

    Since the concepts of measuring communicative effectiveness and appropriate time frames are virtually unrecognized in education, their relevance to the problems of instructional TV requires brief explanation.

5. Measuring communicative effectiveness is simply a matter of employing systematic techniques to determine if instructional material is comprehensible to the receivers for whom it is intended. In other words, does the book, the diagram, the illustration, the explanation, convey its information in a clearly meaningful form?

    Recent pilot research has demonstrated that orderly, systematic studies of the communicative effectiveness

of instructional television is entirely feasible with classroom sized groups of children in the primary grades (1).

This concept of communicative effectiveness is virtually without application in the world of primary education, although the desirability of conducting such measurements is painfully obvious. (The pre-publication tests to which some texts and teaching programs are subjected seldom get to the heart of the issue--objective measurement of the children's comprehension.)

6. The concept of appropriate time frame is equally simple. It merely means conducting the evaluation of effectiveness at the time of the communication--do the pupils comprehend what is said and shown to them at the time instruction takes place.

   This concept represents a substantial departure from customary school practice in which testing for comprehension usually occurs at a substantially later time following presentation, sometimes after a delay of hours, days, or weeks. Such delays mean, of course, that factors of comprehension are hopelessly confounded with factors of memory and forgetting.

   Before children can be expected to remember, it is essential to make sure they have understood in the first place. Children can't be expected to understand or remember a cloudy message.

   The pilot research already conducted indicates that the primary time frame is entirely appropriate for measuring the communicative effectiveness of instructional TV.

7. The five problem areas cited above can be more thoroughly understood in the light of the fact that the pilot research noted here indicates each of these problems can be investigated and resolved in a coherent, systematic fashion.

   a. Children's Visual/Auditory Comprehension

      Recent research (2, 3, 4, 5) has clearly revealed hitherto unrecognized anomalies in normal primary school children's comprehension of what they see and hear.

It has become increasingly apparent that children in the 4-9 year age range experience dramatic transitions in their ability to understand speech and events that flow relatively rapidly in time. Since most orthodox tests of comprehension employ brief segments of information, these comprehension measures generally fail to detect young children's pre-transition comprehension difficulties, and these difficulties are often obscured by moderately adaptive social behavior which allows the children to mask their failures of understanding.

The general assumption that children understand what they see and hear in normally flowing adult-oriented discourse is therefore highly suspect. The same suspicion may be cast on the relatively high-speed flow of discourse teachers employ in the classroom, and the presentation of new information in movies and on TV.

Television instruction, involving relatively fine-grained information, which fails to take this difficulty into account on the basis of systematic analysis is highly vulnerable to communication failure and incomprehensibility.

The extensive behavioral learning that children obviously pick up from broadcast TV is confined almost exclusively to gross behavior, attitude modeling, and mimicry. And, while children obviously retain large amounts of rote material (commercial jingles, alphabet songs, etc.) this retention tends to be confined almost exclusively to materials which are presented with endless repetition. There is no conflict whatever between the observations that young children can learn from TV cartoons, dramas, and commercials, yet often fail to absorb the kinds of information presented in unsystematized non-repetitive instructional programs.

b. <u>Analysis of Effective Programming</u>

There is little or no hard knowledge, there

is only lore, about what constitutes effective programming for given types of information intended for specific groups categorized by age, intelligence, language amastery, socio-economic status, and other significant variables. The lore is based on the highly subjective impressions of producers and teachers.

Although there are more than 100,000 educational films in use in schools, as far as is known not a single one of them has ever been subjected to detailed analysis of children's comprehension of the visual/auditory contents aththe time of presentation.

One of the ironies of contemporary TV production practice is that techniques employed to gain one aspect of communicative effectiveness may actually inhibit a more important element of effectiveness. Specifically, the high-speed pace and frequent scene changes which some programs employ may be highly suited to mobilizing children's attentional gaze. However, there are ample grounds for the hypothesis that such techniques impede their comprehension.

Conflicts such as these urgently require clarification through careful research. Contemporary medical practice has become alert to the danger that the pursuit of one effect by means of medication may induce an unwanted and seriously counter-productive side effect. The same dangers must be recognized in instructional TV programming.

c. Integration with Print Media

The one great shortcoming of TV as an instructional medium is that its content always advances forward in time without being subject to stabilization and review under the viewer's voluntary control. The irreplaceable advantage of print media in the viewer's hands is that he can always review or anticipate in terms of his own informational requirements, simply by shifting his gaze on a page or turning backwards or forwards in a book.

This duality provides a logical basis for combining the advantages of television and the advantages of print media for classroom instruction. The importance of the combination is enhanced by research and observational evidence that young children have extraordinary appetites and apparent needs for redundancy in the process of incorporating what is linguistically novel into patterns of linguistic familiarity.

The communicative effectiveness pilot research noted above demonstrated that visual/auditory information presented by television can be successfully combined with printed material. While this initial work was at a primitive level, it clearly indicates the feasibility of extending the combination to important educational applications. Only with systematic research will it be possible to find the best ways to develop this important technology.

As far as is known, there is as yet no developed body of techniques for combining educational sound films with printed material. This lack is one of the principal factors explaining the relatively minor, ancillary status that educational films occupy as a validated mode of effective curricular instruction. Some integration of visual materials with print materials has been developed in current educational practice, especially with film strips and film loops. However, these developments have been highly unsystematic and severely disadvantaged by the absence of audio.

d. Mobilizing Active Participation

One of the great insights of the present era in education is the recognition that learning is a dynamic process. The learner must be an active participant in the enterprise, not simply a passive recipient of information. Instructional techniques which fail to take this factor into account suffer a built-in limitation upon their educational effectiveness.

The development of educational films has been severely thwarted by failure to incorporate learner participation in the unfolding of new information. Classroom TV will face an equally limited future if means are not devised to make the TV presentation an active rather than a passive experience for the student.

The communicative effectiveness research noted above found a means for integrating the TV presentation with print. It also established a working bond between the TV presentations and the children's thought and judgmental processes which were mobilized in the form of overt responses. This element of mobilized activity was one of the principal factors which accounted for the children's extraordinarily high degree of alertness in terms of measured responsiveness to the TV presentation which, by ordinary standards, might have been regarded as dull and uninteresting.

e. Cost Effectiveness

One of the principal obstacles to the widespread employment of classroom TV is the high cost of the initial hardware, equipment maintenance, and acquisition of program material. These costs represent a tremendous additional burden of expense for school systems already facing revenue crises, even in affluent communities. It is problematical if the federal government can be expected to assume a significant share of this cost burden. In one of the wealthiest per capita states in the U.S. development of a statewide cable TV network for the schools is presently almost dormant because of the forbidding cost picture.

There may be a good argument to be made that well developed TV instruction at the classroom level is highly efficient from a cost-effectiveness point of view. This argument can be developed only if the effectiveness side of the equation can be assessed and stated convincingly in clearly operational terms. This objective can be achieved only as means are developed to show that classroom TV can in fact do the job that is expected of

it. This crucial topic is dealt with in greater detail elsewhere.

8. There might be a tendency among optimists to assume that difficulties threatening the progress of a great idea are always, somehow, solved. But in this case, that assumption might prove quite unjustified. The multiple environments of the educational world tend to inhibit and distort the growth of good ideas that do not demonstrate their potency in a stable, orderly fashion. If the developmental problems of classroom TV are not dealt with coherently, this great new opportunity could follow the pattern of half-hearted, suboptimal, unrealized growth experienced by other innovations which at one time offered their own prospects for great change.

   Educational films and programmed instruction are just two of a number of technological developments that could and perhaps should have had much greater impact on the primary schools than they ever attained. If classroom TV is not to meet the same dismal fate, serious attention must be paid to mounting major research programs to solve the problems briefly noted in this general review.

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